

In the Specification

Please replace paragraphs [0001] through [0003] with the following:

Related Application

This is a §371 of International Application No. PCT/FR2003/003308, with an international filing date of November 5, 2003 (WO 2004/042728 A1, published May 21, 2004), which is based on French Patent Application Nos. 02/13840, filed November 5, 2002, and 03/01752, filed February 13, 2003.

Field of the Invention

~~The present~~The invention relates to the area of packages for digital recording supports in the form of a disk such as CD's, DVD's, or mini CD's and the like.

Background

The general principle of packages comprising a centering stud on which the disk is to be clipped is known ~~in the state of the art~~. The centering studs generally have several deformable petals. They are formed either by molding the bottom of a package consisting of plastic or are in the form of a piece adhered on a cardboard support.

By way of example, ~~patent~~ FR2810442 describes a case for DVD's, CD's or VCD's constituted ~~by~~of a body, a cover, a molded hinge mechanism and comprising an annular projecting element. The projecting element extends upward from the body ~~in order to~~ support a disk. This projecting element is formed by a protuberant collar with flexible wings that lodge in the centering hole of a disk. These petals are fragile and brittle and can break during transport or the placing or removing of the disk. The broken petals then move between the package and the disk and can scratch the disk surface.

Please replace paragraphs [0006] through [0010] with the following:

~~Patent~~ FR 2730087 also ~~proposes~~discloses a flexible plastic case bottom ~~presenting~~having three pins raised vertically relative to the bottom. The disk is wedged between these pins. This solution is not very satisfactory because the disk is not correctly held. In addition, the pins rapidly wear out.

~~Patent~~ US 6, 443, 300 describes a disk case comprising in particular a base with a cavity for receiving one or several disks and disk retention feet connected to ~~this~~the base. ~~These~~The feet, that extend over the peripheral parts of one or several disks arranged in the cavity and hold the disk or disks in ~~this~~the cavity (closed position), can be moved toward a release position in such a manner as to permit the removal of the disk or disks from ~~this~~the cavity.

However, such a case has disadvantages. In fact, the release of the disk or disks ~~or~~ requires a manual intervention directly on the retention feet, thus increasing the risk of scratching by the user when the feet are moved toward their release position. Moreover, the operation consisting of moving ~~these~~the feet toward their release position is not very practical. In fact, this operation requires either a successive release action on each of ~~these~~the feet or the use of both hands of the user for the simultaneous opening of two feet.

Summary of the Invention

This invention relates to a package for a digital recording support in the form of a disk formed by a plate with a disk centering piece, wherein the plate includes at least two radial shoulders defined to cover, when at rest, a marginal zone of the disk and define with the bottom of the plate a slot with a height approximately equal to the thickness of the disk.

Brief Description of the Drawings

The invention will be better understood from a reading of the following description that refers to the attached drawings concerning non-limiting exemplary embodiments in which:

Fig. 1 is a top view showing an exemplary embodiment of the package in accordance with aspects of the invention;

Fig. 2 is a section AA of the package of Fig. 1;

Fig. 3 is a sectional view of an embodiment of the package;

Fig. 4 is a top view showing an embodiment in accordance with aspects of the invention;

Fig. 5 is a sectional view of the embodiment shown in Fig. 4;

Fig. 6 is a top view of another embodiment in accordance with aspects of the invention;

Fig. 7 is a top view of yet another embodiment in accordance with aspects of the invention;

Figs. 8 to 10 are detailed views along sectional planes BB, CC and DD, respectively;

Fig. 11 is a perspective view of another exemplary embodiment of a package for two digital recording supports;

Fig. 12 is a top view of the package of Fig. 11;

Figs. 13 to 15, respectively, are a front view in perspective, a rear view in perspective and a top view of another exemplary embodiment for two digital recording supports; and

Fig. 16 is a perspective view of the package of Figs. 13 to 15 in which the digital recording supports are arranged in the package.

Detailed Description

It will be appreciated that the following description is intended to refer to specific embodiments of the invention selected for illustration in the drawings and is not intended to define or limit the invention, other than in the appended claims.

~~The present invention has the problem of proposing a new type of package that avoids the disadvantages of the devices of the prior art.~~

~~To this end the~~This invention relates ~~according to its most~~in a general meaning~~sense~~ to a package for a digital recording support in the form of a disk formed by a plate with means for centering ~~this~~the disk, characterized in that the plate comprises at least two radial shoulders arranged on both sides of a median line for positioning the disk, which radial shoulders are defined so as to cover when at rest a marginal zone of the disk and to define with the bottom of the plate a slot with a height approximately equal to the disk thickness.

Please replace paragraph [0012] with the following:

~~According to a variant the~~The cavity ~~has~~may have an oval or ellipsoidal shape with a small axis corresponding approximately to the diameter of the disk to be inserted on the plate and a large axis slightly greater than the diameter of ~~said~~the disk, ~~which.~~ The term “slightly” means that the dimensional difference is sufficient to permit a movement along the large axis ~~in order to permit an~~ insertion into the cavity while ensuring the hold by the radial shoulders when the disk is at rest in the position of insertion into the cavity.

Please replace paragraphs [0014] through [0015] with the following:

~~According to an embodiment of the invention the~~The plate ~~has~~may have at least one elastically deformable stop preferentially arranged on the periphery of the cavity.

It is advantageous if at least one of the stops is arranged at the level of one of the slots formed by one of the shoulders and the bottom of ~~this~~the plate. According to a particular configuration of the invention at least one of the stops is supported by one of the shoulders.

Please replace paragraphs [0017] through [0019] with the following:

~~This~~The foot advantageously has a convex shape directed toward ~~said~~the cylindrical cavity.

~~According to a variant this~~The cylindrical cavity ~~is~~may be prolonged from the side opposite one of ~~said~~the shoulders by a prehension zone forming a hollow emptying into ~~said~~the cavity.

~~According to a particular embodiment one~~One of the shoulders ~~covers~~may cover a zone of ~~this~~the cavity, the dimension of which zone is less than 5% of the diameter of the disk.

Please replace paragraphs [0021] through [0028] with the following:

~~According to another variant one~~One of the shoulders ~~is~~may be constituted ~~by~~of a rocking element with a flange with a thickness corresponding to the thickness of the disk, which element can be moved between a position in which it holds the disk in the cavity and a position in which it releases ~~this~~the disk.

~~According to another embodiment one~~One of the shoulders ~~has~~may also have an elastically deformable bottom during the insertion phase of the disk.

~~According to an advantageous embodiment of the invention the~~The package may also ~~comprises~~comprise at least one second plate for housing at least one second disk, which second plate has at least two radial shoulders defined so as to cover at rest a marginal zone of ~~this~~the disk and to define with the bottom of the plate a slot with a height approximately equal to the disk thickness. These shoulders are configured in such a manner as to allow the introduction and ~~the~~ withdrawal of the disk by elastic deformation of a part of ~~said~~the plate.

~~This~~The second plate advantageously covers at least a part of ~~said~~the plate. ~~This~~The second plate preferably covers 50% of the plate cavity.

~~The invention will be better understood from a reading of the following description, that refers to the attached drawings concerning non-limiting exemplary embodiments in which:~~

Figure 1 shows a top view onto a first exemplary embodiment of the package in accordance with the invention.

Figure 2 shows a section AA of this package.

Figure 3 shows a section of a variant of an embodiment of this package.

Figure 4 shows a top view onto a variant of an embodiment.

Figure 5 shows a section of this variant.

Figure 6 shows a top view onto another variant of an embodiment.

Figure 7 shows a top view onto another variant of an embodiment.

Figures 8 to 10 show detailed views along sectional planes BB, CC and DD respectively.

Figure 11 shows a perspective view of another exemplary embodiment of a package for two digital recording supports.

Figure 12 shows a top view onto the package of figure 11.

Figures 13 to 15 respectively show a front view in perspective, a rear view in perspective and a top view of another exemplary embodiment for two digital recording supports.

Figure 16 shows a perspective view of the package of figures 13 to 15 in which the digital recording supports are arranged in this package.

Figures Turning now to the drawings, Figs. 1, 2 and 3, respectively, show a top view and a section of an exemplary embodiment aspect of the invention and a section of ~~a variant of an embodiment~~ another aspect of the invention.

The package is constituted ~~by~~ of a plate 1 with a housing with an approximately cylindrical shape for receiving a disk 3.

Plate 1 is ~~realized~~ made from plastic or any other material. It has a thickness greater than the thickness of disk 3. The housing is formed by cavity 2 with an annular border and central island 15.

It is prolonged by prehension zone 8 with a width of approximately 20 mm that allows the edge of the disk 3 to be grasped by a finger.

Please replace paragraphs [0030] through [0036] with the following:

Shoulder 4 is arranged transversally and extends out ~~in order~~ to cover a peripheral zone of cavity 2.

The two shoulders 5, 6 are arranged symmetrically on both sides of prehension zone 8. The upper surface has a bevel that facilitates ~~the~~ introduction of the disk.

They also cover a peripheral zone of cavity 2. Shoulders 4 to 6 cover the cavity over one to two millimeters ~~in order~~ to ensure an effective hold when disk 3 is in position and to ensure ~~an~~ easy insertion and removal by elastic deformation of part of plate 1.

In a preferred ~~embodiment of the invention~~aspect, the deformable part of ~~this~~ plate 1 consists of an element forming a stop. This stop is advantageously a foot 16 with a convex shape and a width that slightly decreases between its ends and its central part.

~~This foot~~Foot 16, fixed to plate 1 at the level of its ends, is arranged in the slot formed by ~~said~~ shoulder 4 and the bottom of plate 1 in such a manner as to constitute a stop that deforms during the introduction and ~~the~~ removal of disk 3 and reassumes its initial shape once disk 3 is inserted or removed from ~~said~~ cavity 2.

~~In this embodiment the~~The feet and plate 1 ~~are~~may be constituted of plastic.

~~Figures~~Figs. 4, 5 show ~~a variant of an embodiment~~another aspect.

Please replace paragraph [0039] with the following:

It is prolonged by lever 12 that allows ~~the~~ rocking during the insertion or the removal of disk 3.

Please replace paragraphs [0041] through [0042] with the following:

~~Figure~~Fig. 6 shows a top view of ~~a variant of an embodiment~~another aspect. The plate has a housing 2 whose length, measured along an axis passing through cavity 8, is greater than the nominal section of the disk intended to be housed in ~~this~~the housing. ~~This~~The housing can have a circular shape with a diameter slightly greater than the nominal diameter of a disk or can also have an oval shape with a width corresponding approximately to the diameter of a disk and a length greater than the diameter of the disk. The difference between the diameter of the disk and the length of the housing is sufficient ~~for permitting the~~to permit engagement of the disk into the housing, but reduced ~~in order to permit a holding by shoulders 4, 5, 6.~~

Housing 2 receiving the disk comprises prolongation 8 for the passage of a finger. The plate comprises two lugs 5, 6 on both sides of ~~this~~the cavity and extending slightly above the housing in which the disk is housed by several millimeters. ~~These lugs~~Lugs 5, 6 are located in the upper plane of the plate and delimit with the bottom of housing 2 a space whose height corresponds approximately to the width of a disk.

Please replace paragraph [0044] with the following:

It is covered by a lug 4 situated in the upper plane of the plate. ~~This lug~~Lug 4 defines, like lugs 5, 6, a space whose height corresponds approximately to the height of the disk.

Please replace paragraphs [0048] through [0049] with the following:

The disk can be introduced manually or automatically with equipment that ~~realizes~~an facilitates insertion of the disk onto the plate with an initial angle of several degrees.

~~The introduction~~Introduction is performed by sliding the edge of the disk under lug 4. ~~In order to achieve this, the~~The disk is introduced with a slight inclination relative to the plate to achieve this.

Please replace paragraph [0053] with the following:

~~In order to remove it from the housing a~~ finger is engaged into cavity 8 to remove it from the housing.

Please replace paragraph [0056] with the following:

~~Another variant of an embodiment aspect~~ is described with reference made to ~~figures~~ Figs. 7 to 10, respectively, showing a top view and sectional views on an enlarged scale.

Please replace paragraph [0059] with the following:

It also has four zones 31 to 34 for adhering the plate onto a cardboard leaf or a case. ~~Figure~~ Fig. 8 shows an enlarged view in section along a plane passing through one of these adhesion zones.

Please replace paragraph [0061] with the following:

This hemispherical shape with a flat bottom permits ~~the realization of an~~ adhesion with a film of transparent adhesive spreading out perfectly on the junction surface between the plate and the cardboard support and allows the visibility of information written on the cardboard support to be retained.

Please replace paragraphs [0064] through [0073] with the following:

The plate has a cavity 8 opposite ~~this~~ the spring leaf realized by a local reduction of the thickness of plate 1 and an optional window 19 that permits the deeper engagement of the finger under disk 3. The shape of ~~this~~ cavity 8 is oval. The bottom 100 of plate 1 can optionally have an opening to reduce the amount of plastic and to impart a particular aesthetic aspect.

~~In a particular embodiment the~~ The plate comprises may comprise foot 27 connected in a breakable manner to the plate. ~~This~~ The breakable foot 27 covers part of cavity 8 as well as the edge of disk 3 before the first opening.

~~During the~~At purchase, ~~of the product the client breaks~~ breakable foot 27 is broken and a finger can then ~~introduce his finger~~be introduced into cavity 8 and push disk 3 toward spring leaf 16 ~~in order to release it from the plate.~~ ~~This~~The foot can have different shapes and be connected either to a zone of cavity 8 or prolong the upper part of plate 1 in the vicinity of cavity 8.

~~Figure~~Fig. 11 shows another ~~exemplary embodiment~~aspect of a package ~~in accordance with the invention~~ that allows two information supports of the type like disk 3 to be packaged.

~~This~~The package is constituted ~~by~~of a plate 1 with two support zones 1a, 1b for stacked disks. Each of support zones 1a, 1b has a housing for receiving a disk.

The housing of support zone 1a for receiving a first disk has an approximately cylindrical shape and a thickness greater than the thickness of ~~said~~the disk.

The housing of support zone 1a is formed by a cavity 2 with an annular edge and a central island 15. It is prolonged by prehension zone 8 that allows the edge of ~~said~~the first disk to be grasped with a finger.

Support zone 1a has three radial shoulders 4 to 6 covering a peripheral part of ~~this~~ cavity 2 on the order of one to two millimeters. Shoulders 5, 6 are advantageously arranged symmetrically on both sides of prehension zone 8 and shoulder 4 is formed on the edge of this support zone 1a opposite this prehension zone 8.

This support zone 1a also has an elastically deformable zone consisting of an element forming a stop. ~~This~~The stop is advantageously formed by two convexly shaped segments 16, 16'.

Thus, as a result of this configuration the first disk is not only held effectively in ~~said~~ cavity 2 by ~~said~~ shoulders 4 to 6, but is also readily inserted and removed from ~~this~~ cavity 2 by virtue of ~~said~~ deformable segments 16, 16' constituting ~~said~~ support zone 1a of plate 1.

Please replace paragraphs [0075] through [0091] with the following:

The second support zone has two lateral walls 223, 225, a rear wall 224 and an upper wall 226 on which ~~said~~the housing for receiving the second disk is formed. ~~This second~~Second plate 21 advantageously has a thickness greater than the thickness of the second disk.

~~This~~The housing consists of a cavity 22 comprising a bottom in the form of a circle provided with cutout line 28 and an annular wall running along at least part of ~~this~~the bottom in such a manner that an opening 29 is formed on the front face of the second support zone 1b.

Thus, when the disk is positioned in cavity 22 of second support zone 1b, ~~this~~the disk ~~presents~~has a more or less significant part along opening 29 formed on the front face of support zone 1b extending outside of ~~this~~ cavity 22. The free part of the disk then allows it to be manipulated in an advantageous manner, particularly during its withdrawal from cavity 22.

Although not shown in ~~figure~~Fig. 11, ~~this~~ cavity 22 can also have, ~~according to a particular embodiment of the invention,~~ a central island 215.

Just like the first support zone 1a, the second support zone 1b has three radial shoulders 24 to 26 covering a peripheral zone of ~~said~~ cavity 22 on the order of one to two millimeters. Shoulders 25, 26 are advantageously arranged symmetrically on both sides of cutout line 28 and shoulder 24 is formed on the edge of support zone 1b opposite ~~this~~ cutout line 28.

Just like the first support zone 1a, the second support zone 1b is constituted ~~by~~of a deformable part consisting of two convex segments 216, 216'.

Thus, when a disk is inserted into cavity 22 of second support zone 1b, the disk exerts a pressure on ~~these~~ segments 216, 216' that deform under this action ~~in order to permit the~~ insertion of the disk into ~~this~~ cavity 22. The disk is then firmly held in ~~this~~ cavity 22 by ~~these~~ shoulders 24 to 26 and ~~these~~ segments 216, 216' that have reassumed their initial position. The removal of the disk

from cavity 22 is made by pushing on the part of the disk that extends out of cavity 22 in the direction of said segments 216, 216' that deform under the action of ~~said~~the disk ~~in order to permit the removal of the disk from cavity 22 of second support zone 1b.~~

~~This second~~Second support zone 1b is advantageously arranged on support zone 1a in such a manner as to partially cover ~~this~~ first support zone 1a and, more specifically, a part of cavity 2 of ~~this~~ first support zone 1a. ~~In a preferred embodiment of the invention this~~The second support zone 1b ~~covers~~may cover at least 50% of cavity 2 of ~~said~~ first support zone 1a.

On the other hand, ~~this~~ second support zone 1b is arranged on ~~said~~ first support zone 1a in such a manner that rear wall 224 and lateral walls 223, 225 correspond approximately to an extension of the rear wall and at least in part of the lateral walls of ~~said~~ first support zone 1a.

On the other hand, ~~this~~ second support zone 1b is arranged on ~~said~~ first support zone 1a in such manner as to allow sufficient space between the bottom of ~~this~~ second support zone 1b and the bottom of cavity 2 of first plate 1 for ~~the~~ insertion and removal of the first disk into ~~said~~ first support zone 1a. In fact, during the operation of inserting the disk into cavity 2 the first disk should be able to be slid into cavity 2 of ~~said~~ first support zone 1a with a slight inclination. Likewise, during the removal of the disk from cavity 2 the disk should be able to be given an inclination sufficient to allow it to disengage from shoulders 5, 6 constituting ~~said~~ first support zone 1a.

The arrangement of the first and second support zones 1a, 1b thus makes possible ~~the~~ insertion and ~~the~~ removal of the first and second disks independently of one another. In other words, ~~the~~ removal (e.g.) of the first disk from cavity 2 of the first support zone 1a with a package ~~in accordance with the invention~~ does not require, in distinction to the packages known in the prior art, ~~the~~ removal of the second disk arranged in cavity 22 of second support zone 1b and inversely.

~~Figure~~Fig. 12 shows a top view of the package constituted by ~~said~~of plates 1, 21.

~~This second~~Second support zone 1b is arranged on ~~said~~ first support zone 1a in such a manner that ~~said~~ shoulders 24 to 26 are arranged in alignment with shoulders 4 to 6, respectively, of ~~said~~ first zone 1a and that opening 29 of cavity 22 on the front face of ~~this~~ second support zone 1b is directed toward prehension zone 8 of ~~said~~ first support zone 1a.

Even though ~~figures~~Figs. 11, 12 illustrate a package provided with two support zones 1a, 1b stacked for receiving two disks, it is understood that an expert in the art can conceive of packages comprising a plurality of stacked support zones arranged relative to each other in such a manner as to permit the packaging of a plurality of disks without departing from the scope of the ~~present~~ invention.

~~Figures~~Figs. 13 to 15 show another exemplary embodiment of a package for two digital recording supports of the disk type.

The package is constituted ~~by~~of plate 1 with two housings, a lower housing and an upper housing, each for receiving a disk. By virtue of this fact, ~~this~~ plate 1 has a thickness greater than the thickness of two disks.

The lower housing is advantageously cylindrical ~~in order~~ to receive a first disk. More particularly, ~~this~~the lower housing consists of cavity 2 with an annular edge and central island 15.

Please replace paragraphs [0093] through [0096] with the following:

As for the upper housing, it consists of cavity 21 in the form of a crescent moon provided on its external periphery with edge 220 and whose ends 221, 222 extend above ~~this~~ lower cavity 2.

Thus, when the second disk is positioned in upper cavity 22, ~~this~~the disk ~~presents~~has a part extending above lower cavity 2, or, when the package comprises the two disks, above the lower disk as illustrated in ~~figure~~Fig. 16. Just as for lower cavity 2, this ~~upper~~ cavity 22 comprises on its

periphery radial shoulders 24 to 26 and segments 216, 216' forming an elastically deformable stop element.

Just as described above, it is understood that ~~an expert~~one skilled in the art can conceive of packages comprising a plurality of cavities arranged relative to each other in such a manner as to permit the packaging of a plurality of disks without departing from the scope of the ~~present~~ invention.

~~The invention was described above by way of example. It is understood that an expert in the art is capable of realizing different variants of the invention without departing from the framework of the patent.~~

Although this invention has been described in connection with specific forms thereof, it will be appreciated that a wide variety of equivalents may be substituted for the specified elements described herein without departing from the spirit and scope of this invention as described in the appended claims.